PHYS 333 — Problem Set #11

Reading: 3.4.1–3.4.2

Reading Response (due before 9:00 a.m. on Wednesday morning): In class we explored the approximate potential and field due to a very specific arrangement of two charges when the field point is far away from the charges. In the reading Griffiths generalizes our results to an arbitrary distribution of charge. Can you follow the derivation of Eq. (3.96)? What parts give you trouble? [If you haven't ever seen Legendre polynomials before, you can just skip Eqs. (3.94) & (3.95). Griffiths is just pointing out that the set of polynomials that show up here also appear in enough other places in mathematical physics that they have a name.]

Problems: Due Wednesday, October 1

1. Griffiths 3.29

2. Griffiths 3.30

3. ~~Griffiths 3.31~~

4. Griffiths 3.33

5. Griffiths 3.34